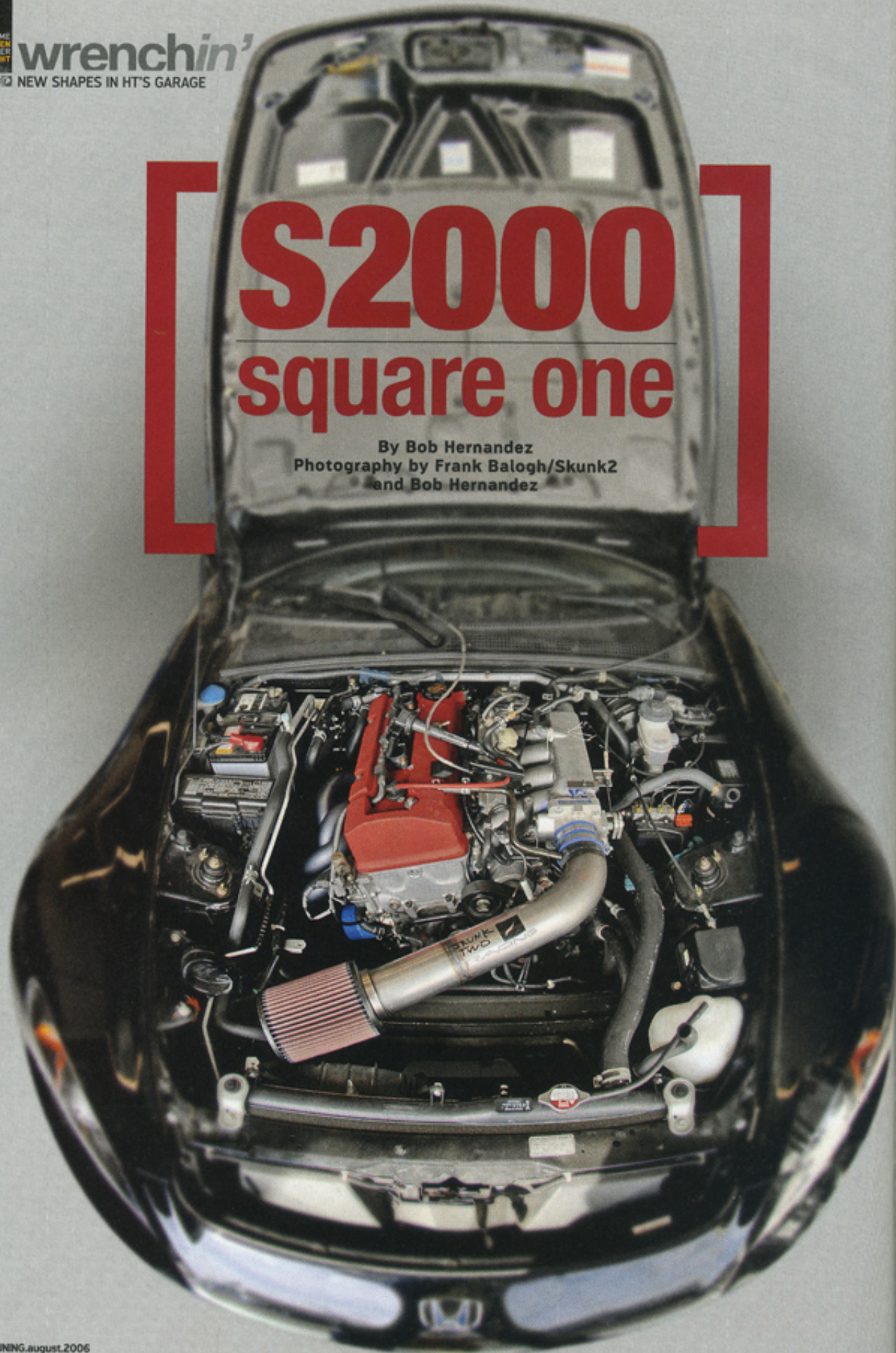


VOLUME
SEVEN
NUMBER
EIGHT

wrenchin'
NEW SHAPES IN HT'S GARAGE

\$2000 square one

By Bob Hernandez
Photography by Frank Balogh/Skunk2
and Bob Hernandez



In January of this year, we ran the first chapter in the saga of our long-term S2000 project vehicle, a slightly embarrassing tale of how we fixed the F22's valvetrain after damaging it in an over-rev situation. While admitting that we screwed up the car was kind of low-point for us (in particular, Editor Bob, the miss-shifter), it obviously wasn't the way we'd hoped to introduce the Berlina Black '05 S2K to our readers. If we had it all to do again, we likely would've started with this installment.

The plan at this point is to eventually outfit the 2.2-liter F-series motor in the roadster with a Vortech centrifugal blower, which should deliver 7 to 8psi of boost pressure and help the car put down something over 300 horses. A tad worn from its previous duty, the AP2 is also going to need other upgrades, brakes and suspension most immediately.

In the interim, though, the S2 has been our errand car and a test bed for Skunk2 Racing, who used it to develop a street-legal header prototype for the F22C1. For the chance to engineer its product on our mule, Skunk threw several bolt-ons our way. We also picked up a Magnaflow cat, running gear from Dunlop and Enkei as well, and Axialflow Engineering was good enough to send its short shifter for us to try out. This is how it all came together. 🍷

[street header]



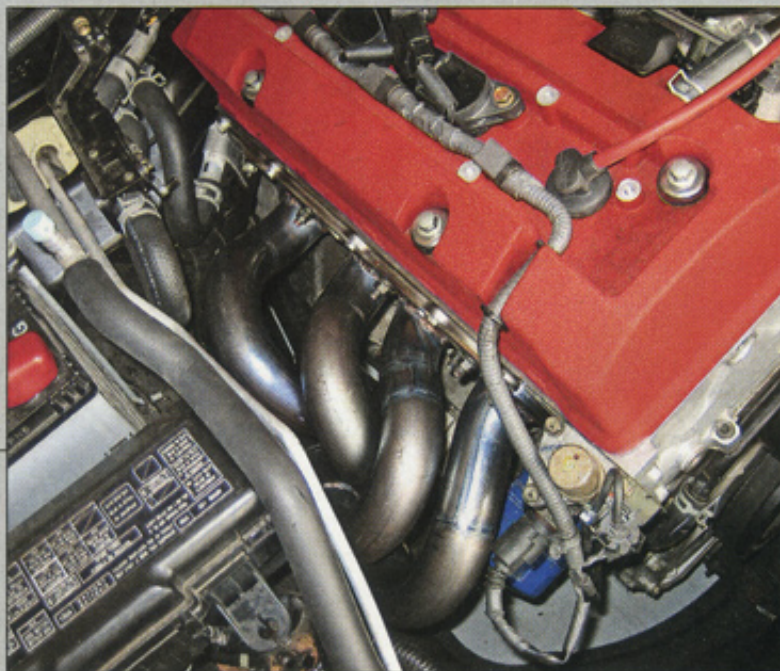
For a two-week stretch in April, Skunk2 had our S2000 at its compound in Norco, Calif., to complete R&D on its street header (right) for the F22C1 motor. Since the manifold is technically still under development, they were mum about any real details in design. But we did get Skunk's Dr. Charles Madrid to reveal that the primaries are about a foot longer than those of competing aftermarket headers.

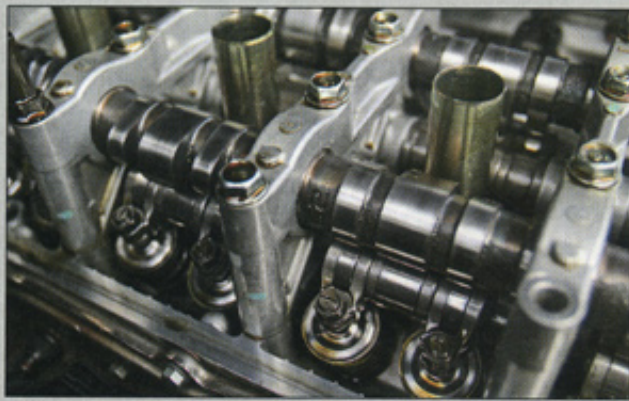
The tubes are longer because the Skunk header pairs off primaries in sequential firing order, that is 1 with 3 and 4 with 2, whereas the OE and most aftermarket headers pair primaries non-sequentially, or 1 with 4 and 3 with 2. The sequential pairing of primaries is preferred for ultimate power output in a Tri-Y, but because of the difficulties inherent in manufacturing this design for street engines, namely that the headers work best with primaries almost as long as traditional 4-to-1, it has proven more cost effective and space efficient for Honda and most aftermarket header producers to make manifolds that use non-sequential pairings. We can only assume that Skunk has found a financially feasible way to mass-produce these headers.



Here's part of the reason why these things are a bitch to manufacture in large numbers: this tangle of tubes looks gnarly enough to be a race header, but it's still a 4-2-1 design. Because of the added plumbing, Skunk's designers had to overlap the primaries thusly.

We're surprised it fit, too. Charles tells us the biggest hurdle was negotiating the bends in the header so there would be enough space to clear the battery and heat shield, as well as the body of the car underneath. The final prototype, and ultimately the one that'll go to market, is compatible with the factory cat and leaves the oil filter entirely accessible. Commercial versions will probably be made from 321 stainless, and should be available by year's end. Compared to other aftermarket headers, the Skunk team found gains of up to 8hp with its manifold.



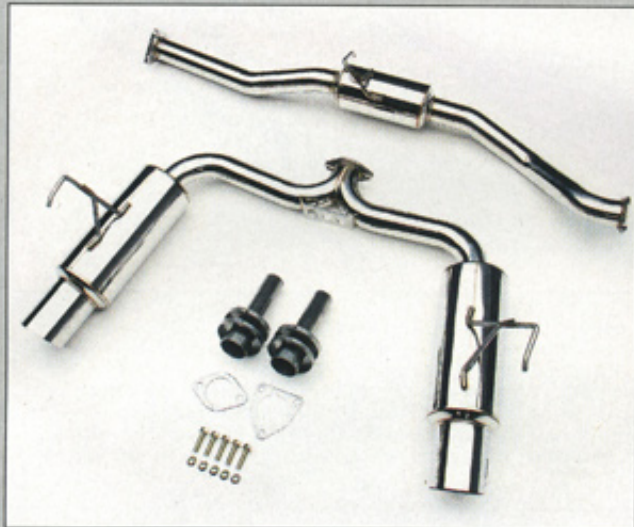


[cams, springs & retainers]

Under the red top, the Skunk team helped along the R&D process by installing some new components in the F22's valvetrain, parts that should be available by the time you read this. Skunk2 stage 1 cams replace the factory bumpies, supported by Skunk's valve springs and retainers. Most of the components are based on S2's Pro series, so the shafts are made from Skunk's new tough core stock, the retainers are CNC-machined titanium, and the springs are heat-treated, shot-peened, and exposed to a chemical polish and nitride process. Until the head is ported, though, Charles tells us we won't be able to take full advantage of the cams—just one more thing to add to the wish list.

[throttle body]

Since we're on the topic of Skunk's Pro line, we'll also mention they bolted on one of their Pro billet aluminum throttle bodies to the intake manifold. It features a hard anodized throttle plate, and the bodies are available in sizes from 60 to 70mm. Ours has an inner diameter of 68mm, going 6mm bigger than the stock opening.



[exhaust]

Under the AP2, new exhaust pipes from Skunk. The cat-back system has been in the S2 catalog for some time and includes mandrel-bent T-304 stainless plumbing finished off with dual low-restriction mufflers flossing 102mm polished tips. Exiting the cat is a length of 70mm pipe that splits into two 60mm tubes before reaching the mufflers. Each S2000 system also comes complete with removable silencers and hardware.



While we eagerly awaited the revised S2K, looking forward to testing out the grip Skunk installed, we weren't quite prepared for how loud it was when it came back. Or rather, our building management and the scores of cars with sensitive alarms in our office parking structure weren't quite prepared for how loud the car was. We took the AP2 back to Skunk and had them put in the silencers and a Magnaflo OBD-II, high-flow catalytic converter, which effectively quieted down the exhaust noise but also took some zeal out of the car.



The kit consists of a CNC-machined 303 stainless shaft, a machined ring for keeping the shaft in place, and Allen head fasteners. It wasn't terribly difficult to install, but the instructions we had did indicate that the ring should be notched and ours wasn't. The notch appears to partly function as an orientation mark, because when we initially tried to secure the ring, none of the mounting holes aligned. After repositioning the ring though, we got everything to cinch correctly.



[short shifter]

Several months back, we ran a tech piece about repairing the stock S2000 valvetrain after over-rev damage, a story precipitated by missing a shift in this very roadster. Richard Paul from Axialflow Engineering read the story, probably had a good laugh, and then was kind enough to send us one of his short shifter kits. The Axialflow kit replaces the OE split shaft and its rubber bonded coupling with a shorter shaft that takes an inch out of the throw and eliminates the indirect movement resulting from the flex of the stock bushing.



There's a marked knob height difference with the new shaft, but the shifting has also become far more precise with the Axialflow. It definitely puts the driver in much more intimate contact with the gearbox. The only issue we have happens at high revs, when a crazy amount of vibration comes up through the shaft. Paul has a fix for this though, essentially a rubber boot included with his latest versions of the kit.

[wheels & tires]



We conclude this upgrade update with a review of the new shoes and soles on our AP2, starting first with coveted 17x7.5 Enkei RPF1 rims tucked in each wheelwell. The RPF1's weigh a remarkable 15.2 pounds each, primarily because of Enkei's MAT process, a method for producing light, strong cast wheels by spinning the castings during manufacture to compress the metal.

The wheels are shod in Dunlop Direzza DZ101 rubber, the fronts 215/45R17 and the rears 245/40R17. The Direzza's boast decent tread wear, temp, and speed ratings (300, A, and W respectively), but after some adventures in under and oversteer, we learned traction is not this tire's strong suit. It's better for spirited daily driving and cruising, but we'll need more aggressive rubber for the track. Stay tuned—more on the way.

AXIALFLOW ENGINEERING
WWW.AXIALFLOW.COM
818/374-7300

DUNLOP TIRES
WWW.DUNLOPTIRES.COM

ENKEI WHEELS
WWW.ENKEI.COM

MAGNAFLOW
WWW.MAGNAFLOW.COM

SKUNK2 RACING
WWW.SKUNK2.COM
951/808-9888

connect